

An AC/DC Power System with an Auxiliary Three-Level Converter under
Voltage Sags

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Abstract

This study proposed an AC/DC power system with an auxiliary three-level converter. The auxiliary three-level converter provides harmonic current compensation and regeneration capability. Thus the auxiliary three-level converter can accomplish the functionalities of an active front-end converter, but with only 0.3-0.5 pu of converter rating. Furthermore, a voltage sags ride-through solution is proposed for the auxiliary three-level converter. Test results are presented to validate the performances of the proposed AC/DC power system with an auxiliary three level converter.

Keyword : auxiliary three-level converter; active front-end converter